

FORMS

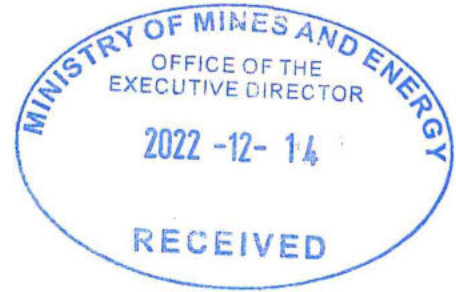
Form 1

REPUBLIC OF NAMIBIA

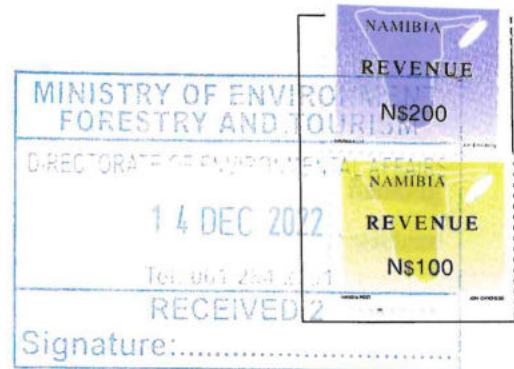
ENVIRONMENTAL MANAGEMENT ACT, 2007

(Section 32)

APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE



**ECC Reference Application No.
APP-00682**



PART A: DETAILS OF APPLICANT

1. Name (person or business) – **Searcher Geodata UK Ltd**

Application for Environmental Clearance Certificate (ECC) for the Proposed Multiclient or Proprietary 3D Seismic Survey covering Blocks 1910B, 1910A, 2010A, 2011A, 2010B, 2011B, 2110B, 2110A, 2111A, 2111Bb, 2111Ba, and Parts of Blocks 1911, 1912B, 2012A, 2012B, 2112A, and, 2112B, Walvis Basin, Offshore Northcentral Namibia.

2. Business Registration/Identity No. **05460266 (UK Registered)**
(if applicable)

3. Correspondence address: **Unit 6, Albion House,
High Street, Woking, GU21 6BG,
UNITED KINGDOM**

4. Name of Contact Person: **Dr Sindila Mwiya or Ms. Emerita Ashipala**

5. Position of Contact Person: **Environmental Assessment Practitioner (EAP)**

6. Telephone No.: **+264-61-306058 / 224780 / 236598**

7. Mobile No.: **+264811413229 / 817016851**

8. Fax No.: **+264-61-245001**

9. E-mail Address: (if any): **frondesk@rbs.com.na or emerita.ashipala@gmail.com**

Tick () the appropriate box

PART B: SCOPE OF THE ENVIRONMENTAL CLEARANCE CERTIFICATE

The environmental clearance certificate is for:

- The ECC is required for the proposed multiclient or proprietary 3D Seismic Survey covering Blocks 1910B, 1910A, 2010A, 2011A, 2010B, 2011B, 2110B, 2110A, 2111A, 2111Bb, 2111Ba, and Parts of Blocks 1911, 1912B, 2012A, 2012B, 2112A, and, 2112B, Walvis Basin, Offshore Northcentral Namibia.

Details of the activity(s) covered by the environmental clearance certificate.

The Proposed Multiclient or Proprietary 3D Seismic Survey covering Blocks 1910B, 1910A, 2010A, 2011A, 2010B, 2011B, 2110B, 2110A, 2111A, 2111Bb, 2111Ba, and Parts of Blocks 1911, 1912B, 2012A, 2012B, 2112A, and, 2112B, Walvis Basin, Offshore Northcentral Namibia. The water depth of the proposed key survey area ranges from ca-500 m in the east to ca -4000 m in the west. The following is the general summary of the proposed 3D seismic survey activities with the detailed specification available from the Proponent on request:

- ❖ **Proposed activities** – 3D seismic survey.
- ❖ **Location** –Blocks 1910B, 1910A, 2010A, 2011A, 2010B, 2011B, 2110B, 2110A, 2111A, 2111Bb, 2111Ba, and Parts of Blocks 1911, 1912B, 2012A, 2012B, 2112A, and, 2112B, Walvis Basin, Offshore Northcentral Namibia.
- ❖ **Area of Interest covering (AOD):** 75800 km².
- ❖ **Seismic survey Water Depth of the main key target area** – Ranges from ca-500m to ca-4000 m from east to west.
- ❖ **Nearest Namibian Port** –Port of Walvis Bay.
- ❖ **Operating company** – Searcher (Proponent).
- ❖ **Survey vessel (s)** – To be confirmed and multiple vessels (2) may be used.
- ❖ **Type of Survey** – 3D Streamers.
- ❖ **Desired acquisition time** – From January / February 2023 if ECC is granted, and.
- ❖ **Estimated survey duration** –Seventy (70) days per survey event.

[**Note:** Please attach plans to show the location and scope of the designated activity(s), and use additional sheets if necessary: EIA and EMP Reports and Annexes are attached to this application.

Title of Activity: Proposed Multiclient or Proprietary 3D Seismic Survey covering Blocks 1910B, 1910A, 2010A, 2011A, 2010B, 2011B, 2110B, 2110A, 2111A, 2111Bb, 2111Ba, and Parts of Blocks 1911, 1912B, 2012A, 2012B, 2112A, and, 2112B, Walvis Basin, Offshore Northcentral Namibia

Nature of Activity:

The proposed 3D seismic survey operations involve sending energy into the earth using an energy wave-generating device, towed by ship for offshore operations (Fig. 1). Specifications of a typical Ramform class seismic survey vessel likely to be used for the proposed survey is shown in Figs. 2 and 3 and all the detailed specific survey parameters and specifications of the proposed 3D seismic survey are available on request from the proponent. Seismic surveys allow geophysicists to get a picture of the terrestrial or marine

underground rock formations (Fig. 2). Airguns are the most common sound source used in modern offshore seismic surveys (2 and 3).

An airgun is an underwater pneumatic device from which high-pressure air is released suddenly into the surrounding water. On release of pressure the resulting bubble pulsates rapidly producing an acoustic signal that is proportional to the rate of change of the volume of the bubble. The frequency of the signal depends on the energy of the compressed air prior to discharge. Arrays of airguns are made up of towed parallel strings (Figs. 2 and 3) usually comprised of a total of 12 - 70 airguns. A single airgun could typically produce sound levels of the order of 220 - 230 dB re 1 mPa @ 1 m, while arrays produce sounds typically in the region of the following:

- Maximum Sound Pressure Level (SPL) of around 232 dB re 1uPa at 1m below the source, and.
- Maximum Sound Exposure Levels (SEL) of around 210.2 dB re ((1uPa) 2 s) at 1m below the source.

The majority of the energy produced is in the range of between 0 - 120 Hz bandwidth, although energy at much higher frequencies is also produced and recorded. High-resolution surveys and shallow penetration surveys require relatively high frequencies of between 100 – 1,000 Hz, while the optimum wavelength for deep seismic work is in the 10 - 80 Hz range. During the survey operation, the seismic vessel records the data from all the hydrophones, including accurate coordinates of the vessel and its hydrophones. The proposed 3D seismic survey will employ numerous streamers and many hydrophones, providing enough data to give a detailed 3-Dimensional profile of the rock layers as illustrated in Figs. 2 and 3.

The depths of the reflecting layers are calculated from the time taken for the sound to reach the hydrophones via the reflector. This is known as the two-way travel time. The pulse of sound from the guns radiates out as a hemispherical wave front, a portion is reflected back towards the hydrophones from rock interfaces. The path of the minute portion of the reflected wave-front intercepted by a hydrophone group is called a ray path.

Hydrophone groups spaced along the streamer pick out ray paths that can be related to specific points on the reflector surface. Graphs of the intensity of the recorded sound plotted against the two-way time are displayed as wiggle traces (Figs. 2 and 3).

Seismic recording at sea always uses the Common Depth Point (CDP) method. A sequence of regularly spaced seismic shots is made as the survey vessel accurately navigates its course. Shots are usually timed to occur at distances equal to the separation of the hydrophone groups. In this way up to 120 recordings of the echoes from any one of 240 reflecting points can be collected. Each represents sound, which has followed a slightly different ray path, but has all been reflected from the same common depth point.

Location of Activity: Blocks 2614, 2613, 2612A, 2612B, 2714A, 2714B, 2713, 2712A, 2712B, 2812B, 2813A, 2814B, 2814A, 2912, 2913B, 2914B, 2914A and 2915 (Excluding Tripp Seamount), Orange Basin, Southern Offshore, Namibia (Fig. 1).

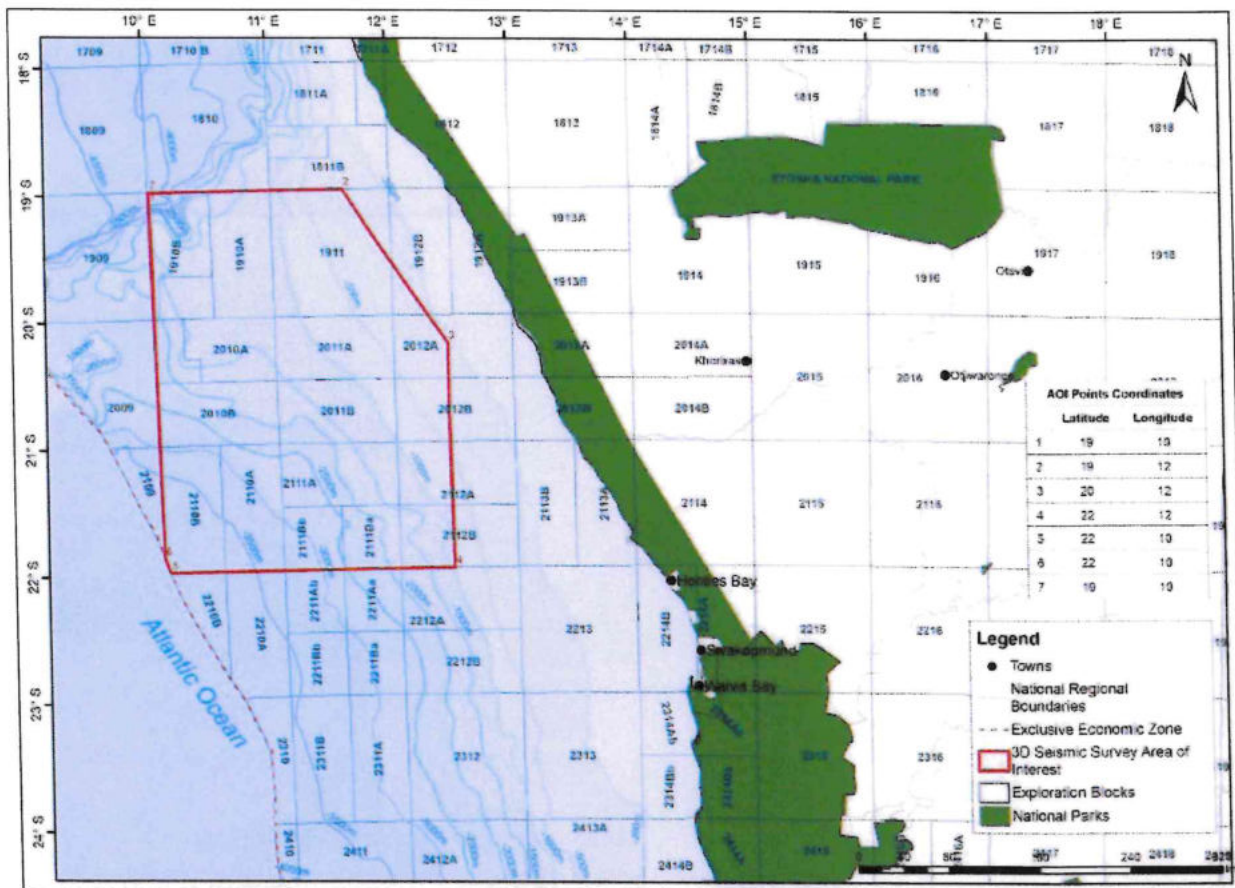


Figure 1: Location of Searcher Geodata UK Ltd proposed multiclient or proprietary 3D Seismic Survey covering Blocks 1910B, 1910A, 2010A, 2011A, 2010B, 2011B, 2110B, 2110A, 2111A, 2111Bb, 2111Ba, 2112B, 2011A, 2012A, 2012B, 2112A, and 2112B, Walvis Basin, Offshore Northcentral Namibia.

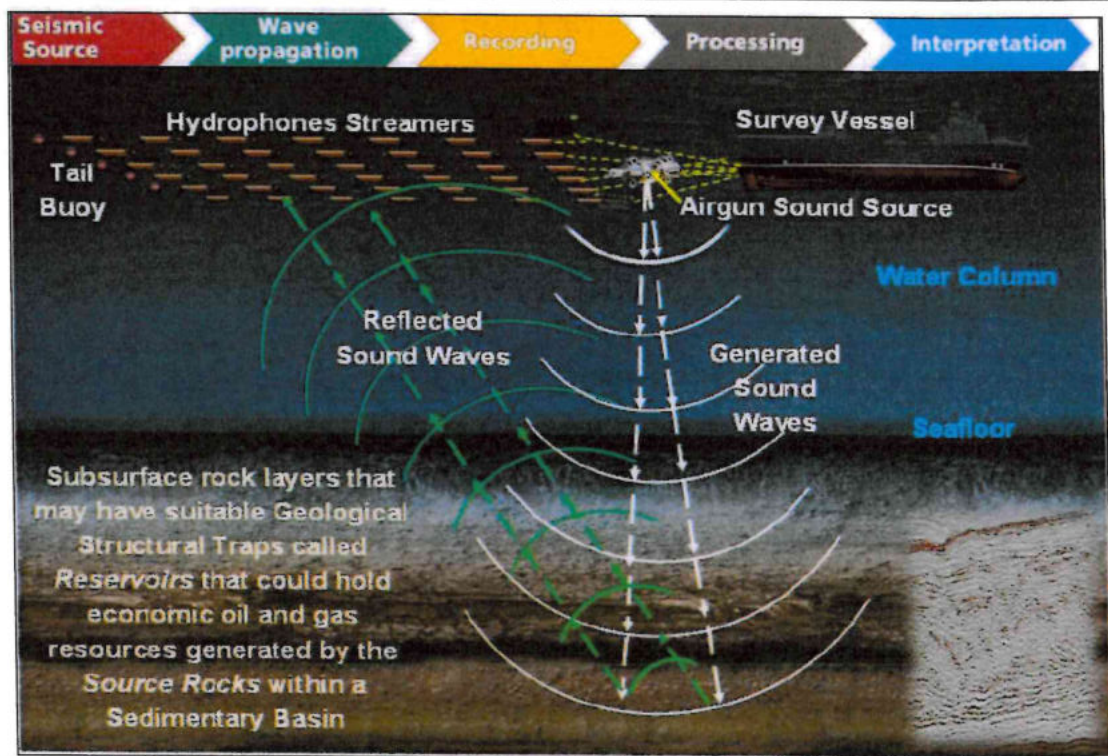


Figure 2: Illustration of the application of marine seismic survey method involving data collection and analyses of the times for seismic waves to travel between the various subsurface rock formations. Geophysicists, geologists, and petroleum engineers use sophisticated software to create subsurface images /maps showing potential drill-ready subsurface geological structures called reservoirs that may contain commercial hydrocarbons as shown in Fig. 3 (Image Source: www.youtube.com/watch?v=FN8IAb0rG9A).

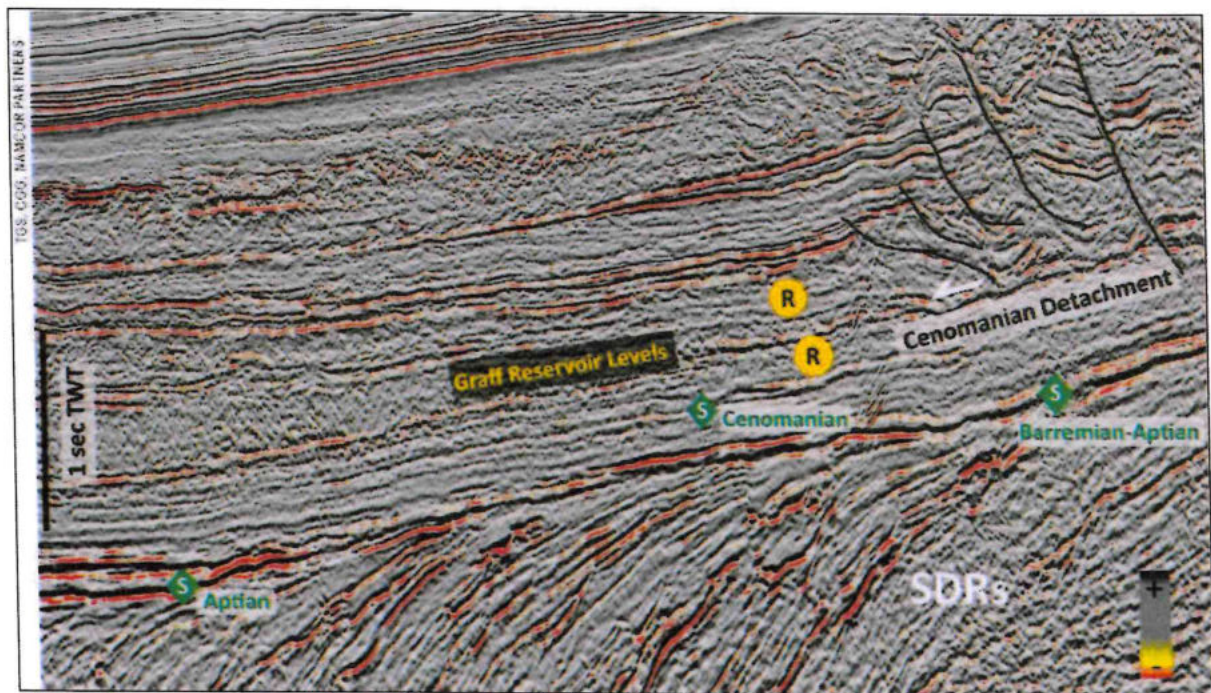


Figure 3: An example of the results of seismic survey data interpretation from the Orange Basin, offshore Namibia showing the SW-NE dip line through the Graff light oil discovery trend at the western end of the toe-thrust system and the base of the collapse structures. The Santonian-Campanian turbidites have been trapped above the outer high, which likely acts as a backstop for the reservoir influx from the east. Light oil in two different reservoir levels has been discovered by Shell in 2022 (Source: Winter F., Intawong A. and Robinson J., 2022).

Scale and Scope of Activity:

The scale and scope of activity of the proposed 3D seismic survey operations will cover Blocks 1910B, 1910A, 2010A, 2011A, 2010B, 2011B, 2110B, 2110A, 2111A, 2111Bb, 2111Ba, and Parts of Blocks 1911, 1912B, 2012A, 2012B, 2112A, and, 2112B, Walvis Basin, Offshore Northcentral Namibia. The proposed project activities have been grouped as follows:

- (i) Routine and physical presence of the survey and support vessels in the area including the Port of Walvis Bay, physical presence of survey and support vessels, Physical disturbance of the survey operations., sound generation from proposed 3D seismic survey airguns including sound of the survey and support vessels engines, increased light levels from routine vessels operations, atmospheric emissions from routine operations of the survey and support vessels, and planned marine discharges, and.
- (ii) Accidental events covering: Unplanned marine discharges (e.g., minor spillages of fuel, lubricants / maintenance oils, loss of vessel, equipment or material, collision with marine wildlife during vessel operations, and, loss of Marine Gasoline Oil (MGO) containment on the survey or support vessels due to ship collision or another major event.

The following is the summary of the proposed project implementation stages as assessed in this Environmental Impact Assessment (EIA) Report with mitigation measures provided in the Environmental Management Plan (EMP) Report:

- (i) Mobilisation and pre-survey preparations.
- (ii) Actual survey operations.
- (iii) Post survey operations, and.
- (iv) Non-routine or accidental events.

Both the survey and support vessels will use existing facilities in the Port of Walvis Bay for supplies, fueling and crew changeover as may be required and if required. No helicopter crew transfer support is anticipated except in event of an emergency.

PART C: DECLARATION BY APPLICANT

I hereby certify that the particulars given above are correct and true to the best of my knowledge and belief. I understand the environmental clearance certificate may be suspended, amended or cancelled if any information given above is false, misleading, wrong or incomplete.



DR SINDILA MWTYA

ENVIRONMENTAL
ASSESSMENT
PRACTITIONER (EAP)

Signature of Applicant

Full Name in Block Letters

Position

on behalf of Searcher Geodata UK Ltd

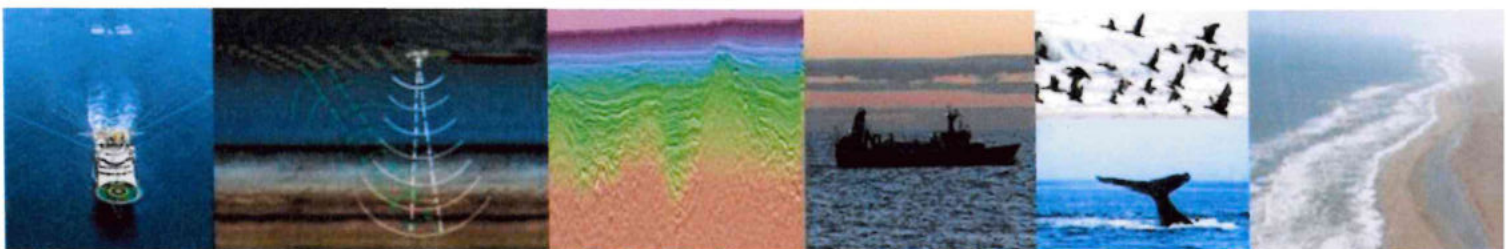
Date:

14th December 2022

Searcher Geodata UK Ltd



Final Environmental Impact Assessment (EIA) Report to Support the Application for Environmental Clearance Certificate (ECC) for the Proposed Multiclient or Proprietary 3D Seismic Survey covering Blocks 1910B, 1910A, 2010A, 2011A, 2010B, 2011B, 2110B, 2110A, 2111A, 2111Bb, 2111Ba, and Parts of Blocks 1911, 1912B, 2012A, 2012B, 2112A, and, 2112B, Walvis Basin, Offshore Northcentral Namibia



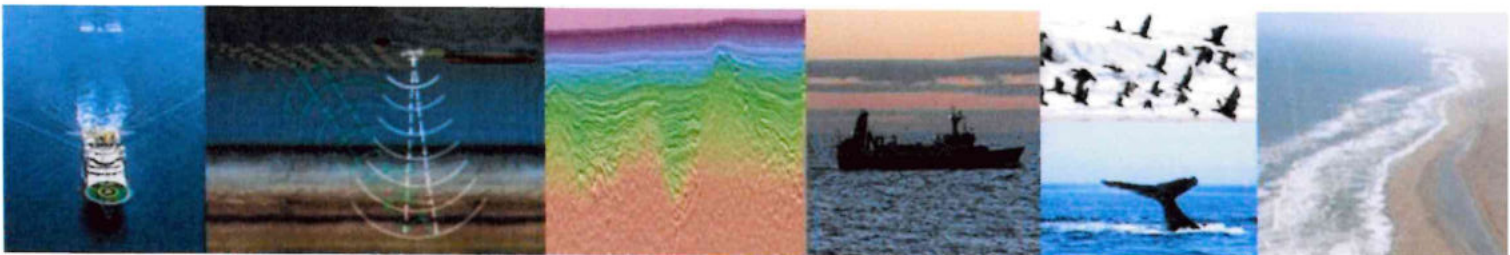
December 2022

Searcher Geodata UK Ltd
Unit 6, Albion House,
High Street, Woking, GU21 6BG,
UNITED KINGDOM

Searcher Geodata UK Ltd



**Final Environmental Management Plan (EMP) Report to Support the Application for Environmental Clearance Certificate (ECC) for Proposed Multiclient or Proprietary 3D Seismic Survey covering Blocks 1910B, 1910A, 2010A, 2011A, 2010B, 2011B, 2110B, 2110A, 2111A, 2111Bb, 2111Ba, and Parts of Blocks 1911, 1912B, 2012A, 2012B, 2112A, and, 2112B
Walvis Basin, Offshore Northcentral Namibia**



December 2022

Searcher Geodata UK Ltd
Unit 6, Albion House,
High Street, Woking, GU21 6BG,
UNITED KINGDOM

Searcher Geodata UK Ltd

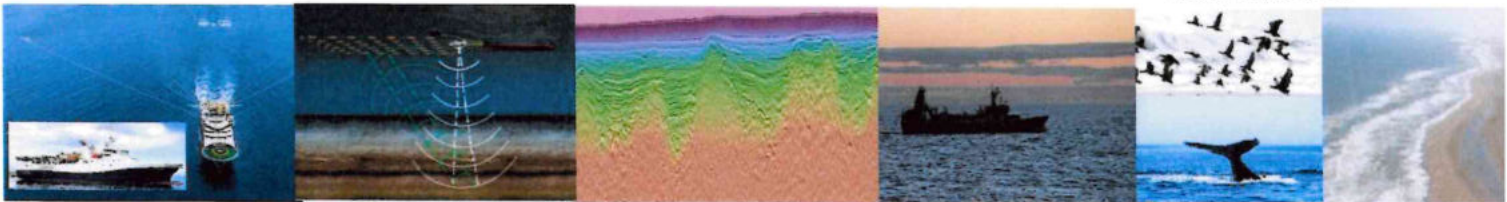
MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
DIRECTORATE OF ENVIRONMENTAL AFFAIRS
14 DEC 2022
Tel: 067 254 2 51
RECEIVED 2
Signature:.....



Background Information Document (BID) / Scoping Report for Public and Stakeholder Consultation Process for Environmental Assessment to Support the Application for Environmental Clearance Certificate (ECC) for the Proposed Multiclient or Proprietary 3D Seismic Survey covering Blocks 1910B, 1910A, 2010A, 2011A, 2010B, 2011B, 2110B, 2110A, 2111A, 2111Bb, 2111Ba, and Parts of Blocks 1911, 1912B, 2012A, 2012B, 2112A, and, 2112B, Walvis Basin, Offshore Northcentral Namibia

November 2022

Searcher Geodata UK Ltd
Unit 6, Albion House,
High Street, Woking, GU21 6BG,
UNITED KINGDOM





Seiche Ltd
Bradworthy Industrial Estate
Langdon Road, Bradworthy
Holworthy, Devon EX22 7SF
United Kingdom

Tel: +44 (0) 1409 404050
Email: info@seiche.com
Web: www.seiche.com

Proposed Seismic Survey – Walvis Basin

Underwater Acoustic Modelling



MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM
DIRECTORATE OF ENVIRONMENTAL AFFAIRS
14 DEC 2022
101 011 264 2201
RECEIVED 2
Signature:.....

